ABUTMENT DESIGN AND DETAILING CHECKLIST

Name of Project:	Input data	Originator:	Input name and initials	Date:	
Name of Structure:	Input data	Checker:	Input name and initials	Date:	
Structure Number:	Input data				
Project Number:	Input data				
PIN:	Input data				

TITLE BLOCK	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Complete all information required in the standard title. • Top line = project name • Second line = structure name • Third line = sheet name					
Complete the title block.					
Fill in initials, dates, and signatures.					

DESIGN	Provided (Originator)			Chk	Comments
	Yes	No	NA		
This checklist covers wingwalls, finwalls, integral and semi-integral abutments up to the seat level and seat type abutments. Integral end diaphragms are not covered in this checklist.					
Meet the requirements of AASHTO LRFD and the UDOT Structures Design and Detailing Manual(SDDM) and as shown on the Abutment Design Sheets, DD-1A and DD-1B.					
Verify the material strengths used in design match the design data listed on the S&L sheets.					
Apply all the superstructure loads to the abutment.					
Apply the approach slab loads to the abutment. Do not apply a live load surcharge behind the abutment.					
Check the longitudinal thermal movement and loading due to movement.					
Check the lateral thermal movement and loading due to movement. Provide expansion material between shear keys and abutment diaphragms to allow for lateral expansion on semi-integral or seat type abutments.					
Verify the pile loading and movement do not exceed the pile capacity.					
Verify the soil bearing pressure does not exceed the soil capacity.					
Meet the shear key design requirements specified in the SDDM.					
Check the minimum seat width requirements.					
Complete a FEM for bridges with a skew greater than 30°.					
Verify that the abutment geometry and the wall geometry are compatible.					
Develop the reinforcing from the abutment into the diaphragm.					
Develop the reinforcing from the wingwalls or finwalls into the abutment.					
Develop the abutment rebar at the wingwall interface to transfer plastic hinging forces away from the wingwall.					
Provide a notch with a minimum depth of 5” and with a height matching the gap between the wingwall and approach slab across abutment face. The notch provides a continuous shadow line from the deck to the approach slab.					Show notch on end diaphragm sheet.
Allow 6” of construction tolerance in pile or drilled shaft details. Pay reductions apply to piles greater than 6” from the design location and piles are rejected if greater than 12” from the design location.					
Account for the formliner when listing clear cover.					

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PLAN	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Show the North Arrow and verify the North Arrow direction.					
Label the horizontal control line of the bridge. Label the bearing of the control line.					
Provide stationing and ticks along the control line. Provide two ticks with stationing labels.					
Label the PC, PT, PI stations.					
Label the PGL.					
Label the centerline of bearing pads and centerline of abutment.					
Label the centerline of girders and show girder numbers.					
Label the horizontal control line to centerline of bearing angles. Use the skew angle method.					
Identify and label the bearing seat areas.					
Show the location of foam under girder. UDOT requires a foam layer in front of the bearing under the girder on integral abutment bridges.					
Label the bearing pad size and height.					
Label and define the anchor bolts and layout. Provide a detail view if required for clarity.					
Show all the dimensions in feet and inches.					
Dimension the abutment and connect the dimensioning to the control line. • Dimension the girder spacing along centerline of bearing • Dimension the out to out of the abutment • Dimension the wingwalls, include angles to abutment • Connect the wingwall dimensions to the centerline of the abutment or centerline of bearing • Dimension the wingwall to abutment fillet dimensions • Label and dimension the finwalls • Dimension the steps in the abutment • Locate and label the shear keys • Dimension from the control line/centerline of bearing intersection to centerline of a girder along the centerline of bearing					
Provide and dimension the wingwalls. UDOT requires wingwalls to extend from the backwall to the front face of the abutment at expansion joint abutments. The top of the wingwall extension parallels the profile grade and matches into the top of wingwall extending back under the approach slab..					
Locate and identify the expansion, contraction and required construction joints. Provide details of the joints.					
Dimension and label the backwall.					
Dimension and label the approach slab seat.					
Dimension and label the construction phase widths and the construction phase numbers.					
Identify the reinforcing lines with appropriate reinforcing callouts.					
Show the reinforcing lap length when required.					
Check for reinforcing and anchor bolt interference.					
Show any special drainage features, abutment backwall drains etc.					
Typical title: **ABUTMENT #X PLAN** • Use other descriptive titles as needed to distinguish between adjacent structures defined by a single structure number.					
Provide a wingwall key plan.					
Dimensioning in additional plan views or detail views does not require connection to the control line.					

ABUTMENT DESIGN AND DETAILING CHECKLIST

ELEVATION VIEW	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Show and label the horizontal control line.					
Show and label the centerline of girder and the girder number.					
Define the bottom of abutment elevations. If level, provide a single elevation and label level.					
Label the bearing seat elevations.					
Label the top of wall elevations and/or step elevations.					
Label the top of shear key elevations.					
Label the slope between bearing seats.					
Locate and label the locations and size of utility blockouts.					
Locate and label the location of weepholes. UDOT requires weepholes on full height abutments.					
Label and dimension the construction phases.					
Identify the reinforcing and show the reinforcing lap length where required.					
Provide tie reinforcing at 4'-0" minimum spacing in abutments over 6'-0" tall.					
Meet the requirements of UDOT Std. Dwg. No. DD 8.					
Provide 1'-3" between the top of the finwall and the approach slab or place at least 3" of rigid plastic foam on the top of the finwall.					
Provide a 5" vertical gap between the approach slab and the wingwall.					
Typical title: **ABUTMENT #X ELEVATION** • Use other descriptive titles as needed to distinguish between adjacent structures defined by a single structure number.					

NOTES AND QUANTITIES	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Place the quantities table in the lower right hand corner and place the notes above the quantities table.					
Reference related sheets.					
Include the following bearing area note. • FINISH BEARING SEAT AREA HIGH. RUB OR GRIND LEVEL OVER BEARING SEAT AREA TO ELEVATION SHOWN $\pm$ 1/16".					
Specify the construction sequence when required.					
Show a quantities table. At a minimum list the structural concrete quantity. List other quantities as necessary.					

SECTION	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Label and identify the reinforcing.					
Show the centerline of abutment. Show the piles or drilled shafts.					
Show the centerline of bearing.					
Identify the back face (or soil side) of the abutment or wingwall.					
Identify the formliner relief and extent.					
Label required and optional construction joints.					
List the reinforcing cover if the cover is greater than 2"					
Provide 2% slope away from the backwall for drainage.					
Provide sections through the abutment, wingwall and finwall.					
Typical title: **SECTION X-X** • Use other descriptive titles as needed to distinguish between adjacent structures defined by a single structure number.					